



LEVEL

5

APRO 80-10 ✓

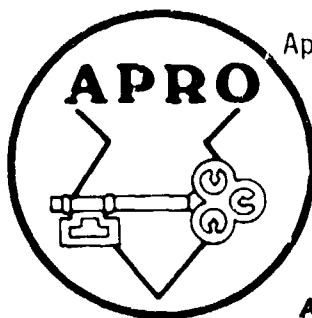
FINAL

AD A100648

CONTRACTOR-FURNISHED EQUIPMENT
VERSUS
GOVERNMENT-FURNISHED EQUIPMENT

DTIC
ELECTE
JUN 26 1981
C

MAY 1981



Approved for Public Release, Distribution Unlimited



ARMY PROCUREMENT RESEARCH OFFICE

U.S. ARMY LOGISTICS MANAGEMENT CENTER
FORT LEE, VIRGINIA 23801

DTIC FILE COPY

81 6 26 051



DEPARTMENT OF THE ARMY
UNITED STATES ARMY LOGISTICS MANAGEMENT CENTER
FORT LEE, VIRGINIA 23801

JUN 24 1981

DRXMC-PRO

SUBJECT: Army Procurement Research Office Report, APRO 80-10,
Contractor-Furnished Equipment Versus Government-Furnished
Equipment

SEE DISTRIBUTION

Inclosed is a copy of subject report for your use. This report identifies the factors that should be considered in making a decision to use contractor-furnished equipment (CFE) or Government-furnished equipment (GFE). A general model of the CFE/GFE decision process and a decision aiding methodology are included in the report.

FOR THE COMMANDANT:

1 Incl
as

Paul F. Arvis
PAUL F. ARVIS, Ph.D.
Director, US Army
Procurement Research Office

JUN 14 1981

DRXMC-PRO

SUBJECT: Army Procurement Research Office Report, APRO 80-10,
Contractor-Furnished Equipment Versus Government-Furnished
Equipment

DISTRIBUTION LIST
FOR APRO FINAL REPORTS

Deputy Under Secretary of Defense (R&E), ATTN: Dir., Contractors & Systems
Acquisition
ASA (RD&A), ATTN: Deputy for Acquisition
Office of Federal Procurement Policy
Defense Systems Management College, ATTN: Dir., Acquisition Research
Commanders
USA Materiel Systems Analysis Activity, ATTN: DRXSY-DI
USA Mat Dev & Readiness Command, ATTN: DRCPP-SP
USA Mat Dev & Readiness Command, ATTN: DRXIG-E
USA Armament Research & Development Command, ATTN: DRDAR-PRC
USA Armament Materiel Readiness Command, ATTN: DRSAR-PP
USA Aviation Research & Development Command, ATTN: DRDAV-PCP
USA Communications-Electronics Command, ATTN: DRSEL-PC
USA Communications-Electronics Command, ATTN: DRSEL-PCD
USA Electronics Research & Development Command, ATTN: DRDEL-AQ
USA Missile Command, ATTN: DRSMI-I
USA Tank-Automotive Command, ATTN: DRSTA-I
USA Test & Evaluation Command, ATTN: DRSTE-PR
USA Troop Support & Aviation Materiel Readiness Command, ATTN: DRSTS-PB
Air Force Business Research Management Center, ATTN: RDCB
Air Force Contract Management Division, ATTN: AFCMD/XQS
Office of Naval Research, Arlington, VA
Office of the Project Manager for Training Devices, ATTN: DRCPM-TND-PP
✓ Defense Documentation Center, ATTN: DDC-TCA, Cameron Station
USA Library, the Pentagon
Federal Acquisition Institute Library, Washington, DC
Naval Center for Acquisition Research, Monterey, CA
Director, Army Acquisition Management Review Agency

5

APRO 80-10

FINAL

CONTRACTOR-FURNISHED EQUIPMENT
VERSUS
GOVERNMENT-FURNISHED EQUIPMENT

by

Charles M. Lowe, Jr.

DTIC
ELECTE
JUN 26 1981

The pronouns "he," "his," and "him," when used in this publication, represents both the masculine and feminine genders unless otherwise specifically stated.

Information and data contained in this document are based on input available at time of preparation. Because the results may be subject to change, this document should not be construed to represent the official position of the US Army Materiel Development and Readiness Command.

Approved for Public Release; Distribution Unlimited

US ARMY PROCUREMENT RESEARCH OFFICE
US Army Logistics Management Center
Fort Lee, Virginia 23801

EXECUTIVE SUMMARY

A. BACKGROUND. Two methods are utilized to provide the components/subsystems for a Government contract: contractor-furnished equipment (CFE) or Government-furnished equipment (GFE). DAR 13-201 states it is the general policy of the Department of Defense that contractors will furnish all equipment required for the performance of Government contracts. However, the Government should furnish equipment to a contractor when it is determined to be in the best interest of the Government by reason of economy, standardization, the expediting of production, or other appropriate circumstances. The subjective nature of many of the factors involved in making such a determination requires a disciplined objective analysis to produce a defensible rational business decision.

B. STUDY OBJECTIVE. The objectives of this study were to (1) identify factors affecting the decision to use CFE or GFE; (2) develop a general model of the CFE/GFE decision process; (3) identify decision aiding techniques appropriate for CFE/GFE analysis; and (4) to recommend a decision aiding methodology.

C. REPORT RATIONALE. Research began with a literature review of CFE/GFE decisions and analysis techniques. Recent CFE/GFE approach decisions were reviewed and interviews conducted with personnel involved in the decisions. The CFE/GFE decision process model was developed from these sources.

D. CONCLUSIONS AND RECOMMENDATIONS. The decision to use either CFE or GFE is highly situation dependent. The primary advantage of GFE is potential cost savings, but its use increases the Government management costs and exposure to contractor claims. CFE maintains the contractor's responsibility for contract performance by payment of overhead and profit/fee for his management of component/subsystem requirements. Choices between CFE/GFE are often made without determining the full economic effects because of the difficulties involved in quantifying the factors. It is recommended that a DARCOM policy on GFE be established to include guidance on conditions for use of GFE. Proposed elements of policy and guidance on conditions for use are included in the report. DARCOM should consider the use of a structured technique for performing applicable CFE/GFE analyses. An example of a structured technique, hierarchical decomposition, for performing this analysis is included.

TABLE OF CONTENTS

	<u>PAGE</u>
EXECUTIVE SUMMARY	ii
LIST OF FIGURES	v
 <u>CHAPTER</u>	
I. <u>INTRODUCTION</u>	1
A. Background	1
B. Objectives of this Study	3
C. Scope	3
D. Terms Explained	4
E. Study Methodology	4
1. Research Design	4
2. Report Organization	5
II. <u>COMPARATIVE ADVANTAGES OF CFE/GFE</u>	6
A. General	6
B. Government-Furnished Equipment	7
1. Advantages of GFE	8
2. Disadvantages of GFE	10
C. Conditions for the Use of GFE	12
D. Contractor-Furnished Equipment	13
E. Summary	14

TABLE OF CONTENTS (CONT'D)

	<u>PAGE</u>
III. <u>CFE/GFE DECISION MODEL</u>	15
A. General.	15
B. CFE/GFE Approach Selection Process	15
C. CFE/GFE Analysis Model	18
D. Summary	25
IV. <u>ANALYSIS TECHNIQUES</u>	26
A. General	26
B. Analysis Techniques	26
1. Analogy	27
2. Economic Analysis	27
3. Uncertainty Analysis	27
4. Hierarchical Decomposition	28
C. Summary	30
V. <u>CONCLUSIONS AND RECOMMENDATIONS</u>	31
A. Conclusions	31
B. Recommendations	32
APPENDIX A	33
APPENDIX B	39
BIBLIOGRAPHY	49
STUDY TEAM COMPOSITION	51

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
1. CFE/GFE Selection Process	15
2. CFE/GFE Analysis Model	18
3. CFE Management Cost Elements	23
4. GFE Management Cost Elements	24
5. Example of CFE/GFE Hierarchical Structure	28

CHAPTER I

INTRODUCTION

A. BACKGROUND.

Two alternative means of procuring the integral components/subsystems for a weapon system are by including them in the prime contractor's contract as contractor-furnished equipment (CFE) or by a procuring activity providing them as Government-furnished equipment (GFE). Under the first option, the prime contractor has total system responsibility to include acquisition, integration and delivery of components/subsystems according to the terms of the contract. Conversely, the Government assumes responsibility for timely delivery of conforming material for integration into the end item when the GFE strategy is utilized. Permutations on either method occur but the general case is still a choice between CFE or GFE.

The general policy for the Department of Defense stated in DAR 13-201 is for the contractor to furnish all material required for the performance of Government contracts unless it is determined to be in the best interest of the Government by reason of economy, standardization, the expediting of production, or other appropriate circumstances. Neither the DAR nor Department of Army (DA) publications provide a methodology for assessing any one or combination of these factors to determine if the expected outcome of using the GFE option would be in the Government's best interest.

Regulatory guidance does exist to the extent of establishing policies to utilize long supply and excess stocks as Government-furnished material,¹

¹ Department of the Army, US Army Materiel Command Regulation 70C-42, Furnishing of Long Supply and Excess Stocks as Government-Furnished Material (GFM), 24 January 1975, p. 1.

and for including plans in system/major items of equipment procurement programs to assume the responsibility for directly procuring as GFE selected items which were initially CFE.² DAR guidance on Component Breakout is limited to decisions dealing with whether components that have been included as contractor-furnished material in a previous procurement of the end item should be "broken out." This guidance specifically excludes the initial GFE decisions that must be made at the inception of a procurement program.³

In the component breakout situation, guidelines are provided,⁴ the use of which is tempered by the acknowledgement that the resulting answers will generally be judgemental. If this is the recognized situation for an item on which procurement and production history exists, then there is little likelihood that the initial acquisition approach decision for a component yet to be developed will be straight forward. In some cases not only finding the answers but knowing the appropriate questions to ask to determine the significant factors and risks involved will be an exercise dependent on expert opinions. The subjective nature of many of the factors involved in the choice between CFE or GFE coupled with the inherent uncertainty requires a disciplined objective analysis to assure a defensible rational business decision.

² Department of the Army, US Army Materiel Development and Readiness Command Regulation 700-97, Standard Integrated Support Management System, with Change 1, 16 November 1978, p. 6-1.

³ DAR 1-326.1(a), p. 1:60.

⁴ See DAR 1-326.4, pp. 1:61-63.

B. OBJECTIVES OF THIS STUDY.

The objectives of this study were to:

1. Identify factors influencing the decision to use either the CFE or GFE option for subsystem/components in system procurements.
2. Develop a model to assist in the decision process of choosing the appropriate acquisition approach.
3. Identify decision aiding techniques for analysis of cost and other factors under uncertainty.
4. Recommend a CFE vs GFE decision methodology for use by DARCOM.

C. SCOPE.

1. The scope of the study includes the variables and processes used by program management personnel for performing an analysis to select an acquisition approach, CFE or GFE. The study identifies factors and costs relevant to the decision and discusses significant points relative to their analysis. While the primary orientation of the study is towards decisions on developmental components/subsystems for weapon systems or major end items, many of the factors and techniques discussed may be applied to production CFE/GFE decisions. The guidelines presented in the following chapters are not a "cookbook" but rather a set of generalized factors (determinants) from which program management personnel can select those factors appropriate to the specific program to be analyzed. In view of the uniqueness of each system's environment, both the factors and uncertainty analysis technique presented are sufficiently flexible to accommodate the addition/deletion of elements according to individual system requirements and constraints.

2. The use of "he" or "his" in this publication represents both the masculine and feminine genders unless otherwise specifically stated.

D. TERMS EXPLAINED.

For purposes of this report, the following definitions are used:

1. Contractor-Furnished Equipment (CFE). (DARCOM-R 700-97) Equipment acquired or manufactured by the contractor for use in the system or end item under contract.

2. Equipment. (DARCOM-R 700-97) Major component or subsystem incorporated into or attached to a weapon system or major end item essential to the operational capability and readiness of the system or end item.

3. Government-Furnished Equipment (GFE). (DARCOM-R 700-97) Equipment in the possession of, or acquired directly by the Government and delivered to the contractor for integration into the system or end item.

4. Program Management. All levels of Army Acquisition management, to include actions by Readiness and Development commands elements through Product and Project Management Offices.

E. STUDY METHODOLOGY.

1. Research Design.

Research began with a review of recent literature on CFE, GFE, acquisition approach decisions and analysis techniques. Regulatory and policy guidance issued by DOD and Army, Air Force and Navy elements were also examined. These reviews provided an understanding of the current direction in CFE/GFE.

Recent CFE/GFE approach decisions were reviewed to determine the factors considered in the decision and the type of analysis used. This effort was combined with interviews of program management personnel regarding CFE/GFE decisions and the impact of those decisions on the affected acquisition.

Based on the results of the research efforts, a model of the overall concept of CFE/GFE acquisition approach was developed. The model has been generalized to serve for all types of weapon system and major end item acquisitions in which a decision for choosing a CFE/GFE approach is required. Incorporated within the model is a method of analysis which can be tailored to accommodate variations in individual program environments and requirements. Recommendations for accomplishing the CFE/GFE decision process within DARCOM are included.

2. Report Organization.

This study is presented in five chapters.

a. Chapter I presents the background of the CFE/GFE decision requirement and the scope of the study.

b. Chapter II discusses the advantages and disadvantages of CFE and GFE, and reasons to consider using the GFE approach.

c. Chapter III provides a model of the decision process and discussion of general factors.

d. Chapter IV relates the model to several analysis techniques with a detailed discussion of hierarchical structure analysis.

e. Chapter V contains conclusions and recommendations.

CHAPTER II
COMPARATIVE ADVANTAGES
OF CFE/GFE

A. GENERAL.

The DAR's support for using the Government-Furnished Equipment approach is conditioned by the requirement that it be in the Government's best interest, and by the notice "It is the general policy of the Department of Defense that contractors will furnish all material required for the performance of Government contracts..."⁵ With these conditions in mind, it is easy to understand the perception of program management personnel that the use of the CFE option is the simpler choice since it is preferred. The savings that GFE may create by reducing add-on costs (e.g., contractor profit, general and administrative expense, material burden) is considered a tenuous benefit when weighed against the potential for increasing program management problems. Use of GFE raises management's concern that workload will be increased without corresponding increases in assigned manpower, and cause configuration management difficulties.⁶

Yet, three program offices that chose to aggressively pursue the GFE option through effective component breakout programs, have incurred estimated savings of \$113 million to \$138 million.⁷ While achieving these savings, the program offices did not find manpower or data requirements

⁵ DAR 13-201, p. 13:6.

⁶ Department of the Air Force, Air Force Audit Agency, Summary Report of Audit 807510, Component Breakout in Weapon Systems Acquisition, 17 Dec 80, pp. 5-6.

⁷ Ibid, p. 2.

to be constraining factors.⁸

Choosing an acquisition approach, CFE or GFE, should be done with an understanding of the advantages and disadvantages of both and conditions which may engender either's use. This chapter will discuss these considerations with the objective of clarifying the applicability of each approach. The order of precedence, CFE/GFE, is reversed in the following discussion only to illustrate the complexities of GFE. This reversal, as is true with the entire study, is not meant to show a preference for either approach.

B. GOVERNMENT-FURNISHED EQUIPMENT.

Property as defined in DAR 13-101.1 consists of five categories: material, special tooling, special test equipment, military property, and facilities. Government-furnished property (GFP) is property in the possession of, or acquired directly by, the Government and subsequently delivered or otherwise made available to the contractor.⁹ Government-furnished equipment is a subset of GFP consisting of a major functional unit, assembly, module or major end item of equipment.¹⁰

A primary characteristic of GFE is its identification as an individual subsystem in one or more systems. As such, its separate identity permits independent development, fabrication, and shipment for integration by the prime contractor into a system or major item of equipment.¹¹

⁸ Ibid, p. 6.

⁹ DAR 13-101.2, p. 13:2.

¹⁰ Department of Army, DARCOM Regulation 700-97, Standard Integrated Support Management System, 16 November 1978, p. A4-5.

¹¹ B. D. Dillard and P. D. Insche. Identification and Definition of the Management Cost Elements for Contractor-Furnished and Government-Furnished Equipment (AFIT - Thesis, 1978), p. 2-3.

Generally, providing GFE is the Government's prerogative and entails the selection of which equipment will be GFE as well as supplying it to the prime contractor. Should the Government choose to use GFE, it has effectively intruded upon the functions of the prime contractor thereby assuming a share of the responsibility of his performance. To undertake such responsibility, GFE should offer some advantages to the Government, and conversely disadvantages should be anticipated. It should be recognized some advantages can also be disadvantages, however, management philosophy or other considerations dictate which viewpoint the program management personnel take in the decision process.

1. Advantages of GFE.

An advantage normally considered as resulting from the use of GFE is cost savings. By displacing the prime contractor, the Government expects to save those direct and indirect costs, and their related profit/fee contribution, it would otherwise pay a prime contractor to manage a subcontract for a subsystem. The contract cost areas in the measurement base which may be reduced include material, material burden, and general and administrative (G&A) expenses. Potential savings from profit/fee are dependent upon the profit/fee rate and the measurement base the rate is applied to. A recent study found the average profit/fee negotiated on Army research and development contracts is 7.7% and 10.0% for production contracts.¹² Even though the percentage of profit/fee for the total contract or for an individual cost element may not be reduced, each dollar removed from the measurement base would result in a decrease in the absolute value of profit/fee dollars.

¹²

G. Klopp, Army Procurement Research Office, APRO 81-01, Weighted Guidelines Trend Analysis (Draft Study - January 1981), Appendix I.

While a reduction in the contractor's total cost base for an individual burden rate may raise the rate, thereby mitigating the effect of the cost reductions, this would only decrease the realized savings proportionally, not in their entirety.

In those instances where the prime contractor would have directly produced the component or subsystem, GFE promotes the spreading of the procurement base. Use of diversified contractors to provide material would serve two functions. First, as a long range objective, it would assist in the effort to revitalize the defense industrial base. While the major system contractors have been maintained by low rate production and foreign military sales, the overall defense industry capability has deteriorated. At the lower tiers of the defense industry there has not only been a deterioration in efficiency but a steep decline in the number of sources willing to do defense work. In conjunction with other initiatives, use of GFE would provide opportunities to broaden the participation of lower tier contractors.¹³ Secondly, diversification of contractors supports the use of competitive procurement techniques. The introduction of competition is significant because of its demonstrated effect on price. Recent analysis has found median savings ranging from 11.9% to 24.3%¹⁴ when material is converted from sole source to competitive procurement.

¹³"Industry Base: GAO, Others Continue Strong Support for Increasing Use of Multiyear Contracts," Federal Contracts Report, 859 (Dec 1, 1980), pp. A3-4.

¹⁴Charles Smith and Charles Lowe, Army Procurement Research Office, APRO P-5, Sole Source and Competitive Price Trends in Spare Parts Acquisition (Draft Study - January 1981).

Another potential advantage of GFE is that the Government retains management control over product design. Unlike the case in which the prime contractor is fully responsible for technical direction, the Government is able through GFE to directly monitor or influence design specifications for development and production of the system.¹⁵ GFE supports the competitive development selection of the "best" subsystem based on Government objectives without a prime contractor's possible bias towards an in-house candidate.

If the Government has required the prime contractor to indicate what the cost would be for equipment planned as GFE, it has generated a potential negotiating point to reduce the cost of CFE. Considering the administrative workload and increased Government responsibility (discussed under GFE Disadvantages below) which may be incurred with GFE, it may be beneficial to attempt to reduce any cost differential between CFE and GFE options. With the price/cost data available from the GFE proposals, the Government's negotiating power with the prime can be applied.¹⁶

2. Disadvantages of GFE.

As mentioned earlier, the use of GFE is often disregarded because of the perception that it entails an inordinate increase in the Government's administrative workload. While the magnitude may be over-emphasized, the fact that GFE requires more management cannot be disputed. GFE places the Government in the position of a supplier of material as well as a buyer of

¹⁵

M. Robert Seldon, Life Cycle Costing: A Better Method of Government Procurement (Boulder, CO: Westview Press, 1979), p. 635

¹⁶

Department of Navy, Navy Ships Systems Command, CFE/GFE Policy Study Final Report (June 1967), p. V3.

the system. Starting with requirements determination through production, inspection, acceptance and delivery of the product to the prime contractor, the Government is responsible to provide timely, conforming material. Few defense agencies have (and are unlikely to get) the staff necessary to perform the increased coordination¹⁷ when the GFE is material for other than stock.

There is a technical risk of GFE not conforming at the time of delivery with a system specification which has fluctuated from the original baseline the GFE was produced to or failing to interface with the system. This has a twofold impact. First, as a continuation of the increased administrative workload in providing GFE, resolution of GFE-connected difficulties will consume the time of engineers and managers. With the manpower ceilings and severe shortages being experienced in the scientific and engineering fields by defense activities, the ability to respond to and to solve such problems is possible only by forgoing other tasks. Secondly, the cost of any modifications or retrofits to originally conforming GFE will be the Government's either as a direct cost or a claim from the prime contractor.

In addition to claims for modification or retrofit work, the system contractor may be able to justify claims against the Government for increased costs due to such GFE related problems as:

- Delay
- Disruptions and Production Inefficiencies due to late GFE
- Repair of Defective GFE

¹⁷

Seldon, op. cit., p. 636.

- Late Availability of Design Information
- Insufficient Stocks of Spare Parts and Test Equipment¹⁸

Even though a System Integration Clause may preclude some of Government's liability, claims resulting from late delivery or non-conforming material might still be submitted.¹⁹ Of equal concern in a claim situation, is the opportunity afforded the contractor to escape responsibility for his own mistakes or failures. A GFE problem may so obscure a contractor's inadequate performance that he is able to avoid any penalties and potentially correct his mistakes, under the guise of being GFE related, at the Government's expense in terms of time and dollars.²⁰

C. CONDITIONS FOR THE USE OF GFE.

The existence of certain conditions or a combination of them may prompt the consideration of using GFE. Some of the reasons often given for using GFE²¹ include:

- Standardization
- Logistics Support
- Configuration Control
- In Stock in Long Supply
- Single Source
- Long Leadtime Components
- Reduction of Cost
- Equipment Complexity

¹⁸Department of Navy, op. cit., pp. I:6-I:7.

¹⁹F.W. Helwig and W.B. Williams, Army Procurement Research Office, APRO 506, Evaluation of the System Responsibility Concept (Unpublished Study - February 1975), p. 27.

²⁰Department of Navy, op. cit., p. I:7.

²¹Department of Navy, op. cit., PP. III.1-III.9

Several of these within the scope of a given procurement may justify GFE. If the expected cost saving is sufficient to overcome the total cost²² and increased liability the Government will incur with GFE, cost saving alone may warrant its use. With the long leadtimes prevalent with many defense products, the Government may be in a position to offset lengthy delivery schedules by procuring GFE before award of the system contract. The complexity of an item may make it a GFE candidate if the prime contractor is reluctant to either accept the design development and cost risks involved or only with the inclusion of unacceptably high dollar contingencies. With the omnipresent requirement to weigh net cost savings against increased liability, providing GFE from excess or long supply, or by direct procurement from a sole source may be valid options.

On the other hand, issues such as standardization and logistic support are really functions of the selection of equipment included in a system rather than the method the equipment is procured by. Likewise, the effectiveness of configuration control is a mutual obligation of the Government and the prime contractor and would involve the entire system, not only selected equipment.

D. CONTRACTOR-FURNISHED EQUIPMENT.

From a physical and functional viewpoint, there is no difference between equipment being provided as CFE or GFE.²³ The difference lies in the obligation for delivery of conforming material remaining with the contractor.

²²

See Chapter III for discussion of the components of GFE cost.

²³

Dillard and Inscoe, op. cit., p. 3.

Since the pros and cons of using CFE are generally the reverse of GFE, they will only be summarized here. CFE allows the Government to avoid the responsibilities it would bear as a supplier of material. This reduces the Government's exposure to claims while maximizing the contractor's burden to demonstrate that any problems were beyond his control. The diminished commitment in personnel to handle administrative tasks and resolve CFE related technical or management problems will allow the manpower resources to be applied to their original missions. These advantages are "bought" by the increased costs, overhead and profit/fee paid the system contractor to perform the role and assume the risks the Government would have had with GFE. The loss of potential cost savings and Government management control over system design and production are two major disadvantages of CFE.

E. SUMMARY.

This chapter has discussed advantages and disadvantages of both approaches, CFE and GFE. The reduction of cost and increased Government control are the primary advantages of GFE but they must be weighed against the increased responsibilities the Government has as a supplier and the increased exposure to contractor claims. CFE has the advantage of leaving the prime contractor fully responsible for his performance but at the cost of paying the contractor to perform the equipment acquisition function. This discussion was intended to acquaint the reader with some of the difficulties and consideration involved in choosing an acquisition approach.

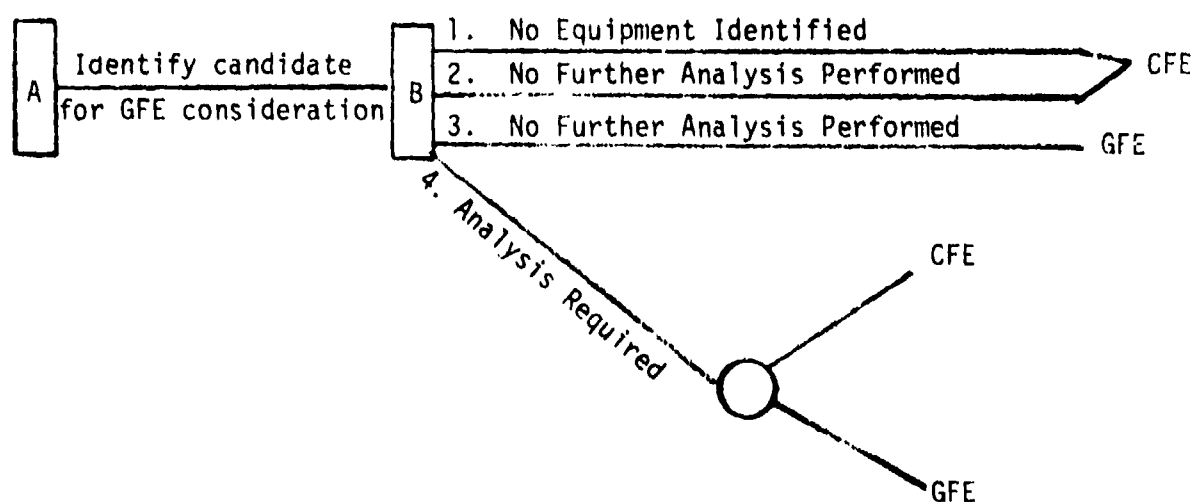
CHAPTER III
CFE/GFE DECISION MODEL

A. GENERAL.

While the basic process of selecting either CFE or GFE as the more appropriate means of supplying subsystems and components is relatively simple, the complexities that may be added to the selection process are highly situational dependent. These complexities will vary with such conditions as program or command policies, decision level thresholds or external concern (e.g., Congress); moreover, the decision will be influenced by the type and availability of data. This chapter presents general models for the selection process, an analysis approach, and a discussion of CFE/GFE analysis factors.

B. CFE/GFE APPROACH SELECTION PROCESS.

In its simplest form, the process of making a decision to use either CFE or GFE can be performed in two phases as shown in the selection process model (figure 1). This general model is subject to the addition of many intervening steps to accomplish management or policy (regulatory) objectives. However, their inclusion is dependent on diverse program, command or agencies requirements which are not known and therefore not considered herein.



CFE/GFE SELECTION PROCESS

FIGURE 1

The first phase of the process is a study of the system or major end item to identify equipment susceptible to being provided as GFE. Criterion²⁴ to consider in selecting candidates might include:

1. Standard Items/Common Use
2. Items in Government Inventory
3. Commercial Items
4. Items being developed under Government contract
5. Equipment to be developed
6. Combination of any of the above.

Further screening of equipments for designation as GFE candidates should address whether the potential net cost savings will be sufficient to warrant further analysis or even immediate use as GFE. Immediate selection would be dependent upon the ability of the selection authority to determine that this action would not jeopardize the quality, reliability, performance or timely delivery of the end item,²⁵ even though expected savings may be substantial. An example of an item identification methodology used by the Air Force is provided in the Appendix. Though the appendix is intended only as an example, this methodology has been studied for practicality and efficiency, and is considered the best available documented structured approach.

Based on the outcome of the equipment identification step, the four possible courses of action in the second phase are shown in figure 1. First, if no equipment is identified as a suitable GFE candidate, the CFE approach will remain the sole procurement method. Secondly, even though candidates are

²⁴Department of Air Force, Air Force System Command/Air Force Logistics Command Regulation 800-31, Government-Furnished Equipment/Contractor-Furnished Equipment (GFE/CFE) Selection Process, GFE Acquisition and GFE Management, 13 July 1979, p. 4.

²⁵DAR 1-326.2, op. cit., p. 1:60.

found, no further analysis is performed because CFE (for whatever reason) is the preferred state. In the third course of action, the GFE option is chosen without further analysis on the basis of a combination of apparent significant net cost savings potential and no obvious factors which might jeopardize the prime contractor's performance. Finally, if the conditions for the third course are not that obvious, and neither of the other two choices are made, a more detailed analysis of the GFE candidates will be required in order to aid in a decision. The better approach may be recommended on the basis of a rational presentation of the benefits and problems involved with each alternative.

A GFE decision may be required under two basic sets of conditions. An initial determination could occur during the conceptual, demonstration and validation, full-scale engineering development or first production phases in the life cycle of a system or major end item. Component breakout extends the decision through the production and deployment phase to components which have been included as contractor-furnished in a previous procurement of the system or end item.²⁶

From a practical standpoint, while a decision may be made at any time, the ability to implement them is dependent on the timing of the decision versus program schedules and administrative and production lead-times. The objective is to acquire and provide GFE without adversely impacting the prime contract schedule. The decision process must allow sufficient time for an equipment and acquisition approach selection as well

²⁶

DAR 1-326.1, p. 1:60.

expected or foregone by choosing one course of action rather than another.²⁷

The model is based on an analysis technique called hierarchical decomposition which is explained in more detail in Chapter IV. Briefly, this technique involves the decomposition of an area of analysis into its components and their subelements until the relevant costs, risks and/or benefits of each can be assessed. These anticipated outcomes can then be evaluated to determine their relative importance and any trade-offs.

The factors depicted in the model are general categories in which the Government may incur costs or benefits dependent upon which acquisition approach is chosen. The proposed determinant factors are:

1. Technical - the impact of technical (performance/design) aspects of the subsystem or system on other functions, e.g., interface requirements or quality assurance.
2. Management - Government management costs to accomplish management and administrative tasks, such as scheduling, and GFE procurement and contract administration; the ability of the Government to accomplish Government policy and regulatory objectives.
3. Schedule - the risk a subsystem contributes to the system schedule and its variation according to acquisition approach used.
4. Cost - Effect on costs based on source of supply, contractor or Government. Includes net cost savings and cost risks.
5. Logistics Support - Costs/benefits associated with how logistics support will be provided.

While the diversities encountered from program to program make it

27

Gene H. Fisher, Cost Considerations in System Analysis (New York: American Elsevier Press Co, Inc., 1971), p. 62.

impossible to anticipate all possible subelements, the following questions may help to identify areas to be considered.²⁸

1. Technical.

a. Which method of acquisition would provide the better capability to assume the technical risks associated with quality assurance, reliability and interchangeability?

b. Which method has better potential for integrating the equipment into the system?

c. Does the maturity of the technical data package favor the use of a particular method?

d. Which method gives the Government better technical/management insight into the item, if the item has potential for use in other systems?

e. For an item with potential for use in other systems, which method permits a continuing engineering program that keeps the item current with the state of the art?

2. Management.

a. Which method gives better assurance that contractors will deliver on schedule and comply with specifications?

b. Which method takes better advantage of other programs that are already acquiring the same item?

c. Which method better ensures contractors will adhere to any warranty provisions?

d. Which method encourages a stronger competitive environment?

e. Which acquisition method encourages small business to take part in the program as an item vendor?

28

Adapted from GFE/CFE Determination Checklist, AFSCR 800-31, op. cit., p. 21.

f. Which method is favored when the number of items to be acquired is considered?

g. Which method better allows for Foreign Military Sales (FMS) considerations to be fulfilled.

3. Schedule.

Which method better provides the leadtime needed to meet the prime contractor's schedule requirements?

4. Cost.

a. Which method handles the program's funding constraints better?

b. Which method is more cost effective (e.g., how does the contractor's overhead cost compare with the cost of any additional Government resources that would be needed if the item was supplied as GFE)?

c. Which method better exploits the unit-price savings resulting from competition? Are there several vendors who can supply the selected item?

d. Which method promotes the acquisition and use of productivity enhancing capital equipment by a contractor?

e. Which method has a more acceptable degree of cost risk?

5. Logistics Support.

a. If an item is not in the DOD inventory and is non-supportable, which method of acquisition would be the most advantageous to the Government for providing logistics support elements (such as technical data and spares) after it is supplied?

b. Which acquisition method better provides for maintaining the item after delivery to the contractor?

c. If an item is available in the DOD inventory, can it be kept in a holding account until needed? Are there enough spares and repair parts

to support the additional operational requirements? Which acquisition method do these considerations favor?

The subelement of Government management costs under the cost factor warrants further discussion. The CFE/GFE management costs shown in figure 3 and 4 were identified by AF program management personnel involved in CFE/GFE decision making as relevant to management cost analysis. Even though a majority of the costs were judged to be impractical to use,²⁹ this listing does point out the types of Government resources involved in GFE management. While the obvious difference between the Government costs for CFE (figure 3) and GFE (figure 4) are the added costs under the title Project Office, it must be emphasized that many of the repeated costs in other Government offices will be influenced by the use of GFE.

A more specific listing of the types of tasks the Government may be involved with in the GFE case include those source costs:

... relating to requirements determination, order processing, procurement, item cost, transportation, receiving and storage, invoice and payment processing, unit returns, repackaging, distribution, inspection and quality control, and disposal of obsolete and excess stock. Also included are indirect costs associated with personnel support, depreciation, and interest on investment in cash, receivables, inventory, and real and personal property.³⁰

These costs and the ability to measure their variance due to using GFE will vary from command to command. The intent of this discussion is not to direct their use or set forth how much weight they should be given in an analysis, the objective is only to identify costs which influence the total cost or benefits of using either CFE or GFE.

²⁹

Dillard and Inscoc, op. cit., pp. 50-51.

³⁰GAO Report B-178214, Uninformed Procurements Decisions for Commercial Products are Costly, p. 3.

Contractor		Government			
Prime Contractor	Subcontractor	Systems Program Office	Project Office	Prime Contract Administration Office	Subcontract Administration Office
1. Receiving and Handling 2. Inspection and Test 3. Labor, Engineering, Materials, Manufacturing 4. Mission Support 5. Plant Overhead 6. Labor Overhead 7. Engineering Overhead 8. Manufacturing Overhead 9. Materials Overhead 10. General and Administrative Expense 11. Profit		12. Mission Support 13. Procurement Manpower 14. Project Division Manpower 15. Manufacturing Operations Manpower 16. Configuration Management Manpower 17. Data Management Manpower 18. Engineering Manpower 19. Building Maintenance, Clerical		20. Quality Assurance 21. Contract Administration 22. Property Administration 23. Rent 24. General and Administrative Expenses	25. Quality Assurance 26. Contract Administration 27. Property Administration 28. Rent 29. General and Administrative Expenses

FIGURE 3. CFE MANAGEMENT COST ELEMENTS

Project Office - Organization Responsible for Management of the GFE Subsystem.

Source: Figure 4.2., Dillard and Inscow, op. cit., pp. 35-36.

<u>Contractor</u>		<u>Government</u>			
Prime Contractor	Subcontractor	Systems Program Office	Project Office	Prime Contract Administration Office	Subcontract Administration Office
1. Surviving and Handling 2. Inspection and Test 3. Labor, Engineering, Materials, and Manufacturing 33. Installation 34. Plant Overhead 35. Labor Overhead 36. Engineering Overhead 37. Manufacturing Overhead 38. Materials Overhead 39. General and Administrative Expense	40. Repair Craftsmen 41. Mission Support 42. Procurement Manpower 43. Project Division 44. Manpower 45. Manufacturing Operations 46. Manpower 47. Configuration Management 48. Data Management 49. Manpower 50. Engineering Manpower 51. Building Maintenance, Clerical 52. Clerical	43. Mission Support 44. Transportation 45. Project 46. Manpower 47. Procurement 48. Manpower 49. Engineering 50. Configuration and Data Management 51. Manpower 52. Building Maintenance, Clerical, etc.	43. Mission Support 44. Transportation 45. Project 46. Manpower 47. Procurement 48. Manpower 49. Engineering 50. Configuration and Data Management 51. Manpower 52. Building Maintenance, Clerical, etc.	54. Quality Assurance 55. Contract Administration 56. Property Manpower 57. Administration 58. Manpower 59. Rent 60. General and Administrative Expense	54. Quality Assurance 55. Contract Administration 56. Property Manpower 57. Administration 58. Manpower 59. Rent 60. General and Administrative Expense

FIGURE 4. GFE MANAGEMENT COST ELEMENTS

Source: Figure 4.1., Dillard and Inscoe, op. cit., pp. 33-34.

D. SUMMARY.

The CFE/GFE selection process is a two phase procedure. First, equipment suitable for being provided as GFE must be identified. Secondly, the acquisition method for the selected equipment must be evaluated to determine the most effective approach. The factors and subelements involved in the analysis will vary according to the equipment and organizations involved.

CHAPTER IV

ANALYSIS TECHNIQUES

A. GENERAL.

The CFE/GFE decision model provides a framework for the user to identify the variables (factors) for a specific analysis. Various analysis techniques must then be applied to the model to provide the decisionmaker with a rational basis to choose CFE or GFE. The analysis for a CFE/GFE decision can be very simple, amounting to no more than an estimation of the profit paid the prime contractor to manage subcontracts. In fact, there is evidence that this is the primary means of assessing management costs.³¹ Conversely, the analysis can legitimately require the efforts of a project team just to determine what factors and subelements should be included. This chapter discusses some of the types of analysis that might be used, and provides further explanation of the hierarchical decomposition approach to decision aiding. Because the actual analysis should be accomplished by analysts familiar with the intricacies of each technique, the intent of this chapter is only to suggest alternative methods. The chapter will not give a full treatment to each type of analysis method.

B. ANALYSIS TECHNIQUES.

The use of a disciplined analysis technique to assist in the CFE versus GFE decision provides a methodology to rationally assess the applicable factors. Even though many of the factors may result in subjective responses, their systematic evaluation provides a basis for a defensible decision.

³¹

Dillard and Inscoe, op. cit., p. 57.

Depending on the complexities of the analysis required, several techniques may be applicable. The choice will depend on the type and availability of data to be used, the factors involved, e.g., cost only or cost and one or more other factors or factors other than cost. Some analysis may require a combination of techniques. The following are suggested as potential tools to use in the decision aiding process.

1. Analogy - The simplest analysis is to compare the item under consideration to another which is or was GFE. If both share some characteristics, e.g., technical and cost similarity, it can be inferred they will probably agree in other ways. Therefore, if one item was successfully used as GFE, a like item in similar circumstances should have comparable success. Such judgements have the advantage of providing a fast analysis but with a rather limited scope since dynamics of the situations are ignored.

2. Economic Analysis.

Economic analysis is a systematic approach to identify the benefits and other outputs and costs associated with alternative ways of accomplishing a given program. DODI 7041.3, Economic Analysis and Program Evaluation for Resource Management, provides general guidelines on the criteria for its use and its methodology. It is basically oriented to the concept of economic analysis, and periodic reviews and updates.

3. Uncertainty Analysis.

Economic analysis may be considered a subset of uncertainty analysis. Uncertainty analysis adds the scope of assessing the risk involved with a specific course of action in terms of cost, schedule and performance to determine the probability of realizing the program's objectives. This

provides a means of quantifying uncertainty. An outline of uncertainty assessment techniques can be found in Decisions and Designs, Inc., Handbook for Decision Analysis or DARCOM Handbook H-1.1-79, Army Programs Decision Risk Analysis (DRA) Handbook.

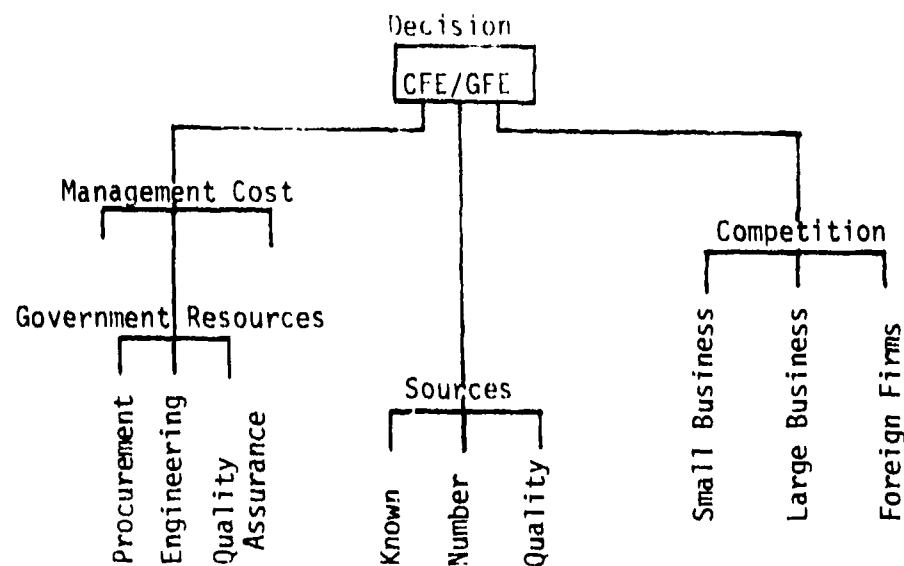
4. Hierarchical Decomposition.³²

Hierarchical decomposition is a methodology for analyzing a complex problem by decomposing it into manageable subelements. It is explained in more detail than the other techniques because it is not that well known. Moreover its flexibility lends itself to such analysis as the CFE/GFE decision in which a variety of different factors are involved under conditions of uncertainty. The CFE/GFE analysis model utilizes the hierarchical structure because of its adaptability.

With differing values (dollars, performance, time, etc.) and uncertainties for the factors and subelements involved in a particular CFE/GFE decision, it becomes extremely difficult to assess the outcome of the end alternative (CFE or GFE) directly. The objective of the hierarchical decomposition is by continuing to decompose a factor to the point where the uncertainties of the subelements can be assessed, a recomposition back through the hierarchical structure (figure 5) will provide an overall assessment of the possible outcomes. The assessment is then used by the decisionmaker to select the best alternative.

³²

Scott Barclay, et. al., Handbook for Decision Analysis (McLean, VA: Decisions and Designs, Inc., 1977) pp. 117-126.



Note: This is an example only and meant to show how factors/subelements can be decomposed to a level where they can be assessed.

EXAMPLE OF HIERARCHICAL STRUCTURE

FIGURE 5

Essentially the analysis can be accomplished in five steps.

1. The most important factors (technical, cost, management, schedule, and logistics support) are selected. A project team breaks these down to the relevant subelements with supporting rationale.
2. Criterion to evaluate the subelements by are then established.
3. Each subelement is assessed on the basis of its outcome.
4. The outcomes are then weighed according to their importance and trade-offs analyzed.
5. Results of analysis are determined and supporting rationale developed.

This methodology has several advantages. It is flexible, the explicit relationships are documented as well as analyzed, and its rationality contributes to its defensibility. Since the problem is reduced to its sub-elements, individuals knowledgeable in those areas can contribute their expertise without necessarily contributing to the full question. Both qualitative and quantitative data can be incorporated into the analysis.

C. SUMMARY.

The choice of an appropriate analysis technique for CFE/GFE decision aiding will depend on the extent and type of data available and complexity of the situation involved. Analogy is a simple technique to use, especially if the time available for analysis is limited, but is inadequate in its ability to assess differences between the items being compared. Economic and uncertainty analyses are more powerful tools which can measure the expected outcome of a decision in terms of costs or benefits and with consideration of the uncertainties involved. Hierarchical decomposition is an example of a flexible analysis technique suited to CFE/GFE analysis which requires the analysis of multiple dissimilar factors.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS.

The choice between using the CFE or GFE approach is a highly situational dependent decision. The prime advantage of GFE is potential cost savings, but it may bring about increased management costs and the increased potential for contractor claims. CFE serves to maintain the contractor's responsibility for performance in return for payment of material overhead, general and administrative expenses, and profit/fee for equipment the contractor purchases or manufactures directly.

The CFE/GFE selection process requires two determinations. First, equipment must be selected which is suitable for GFE. Secondly, CFE/GFE factors-technical, management, cost, schedule, and logistic support-for both approaches must be assessed to find the more effective option. Management costs most certainly accrue from the use of GFE, but they are difficult to quantify. Consequently, net cost savings for GFE are most often computed on the basis of estimated contractor profit/fee and other contract costs rather than full economic costs.

Several techniques can be used to analyze a CFE/GFE choice including analogy, economic analysis and uncertainty analysis. A type of uncertainty analysis with the requisite flexibility for CFE/GFE decision aiding is hierarchical decomposition. While recognizing both the quantitative and subjective analysis involved, the use of the forementioned techniques to conduct a disciplined systematic analysis of a CFE versus GFE choice will support a defensible decision.

B. RECOMMENDATIONS.

1. It is recommended a DARCOM policy on the use of GFE be established. At present, GFE is discussed only in terms of using excess stocks or for its management in the Standard Integrated Support Management System. Suggested extracts from AFSC/AFLC Regulation 800-31 to be used in developing DARCOM guidance are provided at Appendix B.

2. It is recommended the DARCOM Comptroller establish guidance on the cost of performing management functions, e.g., contract administration, engineering support and requirements determination, for use in analyzing management costs of using CFE or GFE. This guidance could also be applied to the analysis of inventory costs, realignment of materiel management assignments and other commodity command functions.

3. It is recommended that the use of structured techniques such as hierarchical decomposition be considered for conducting CFE/GFE analysis.

APPENDIX A

IDENTIFICATION OF GFE CANDIDATES

This appendix provides an example of an item selection process used by the Air Force to find GFE candidates. This extract from AFSC/AFLC Regulation 800-31 is intended only as a guide for development of selection criteria and analysis techniques appropriate to an individual system's requirements.

4. Item-Selection Process:

- a. Review the program's requirements for equipment and its plans for managing equipment.
- b. Review the questions on the item-selection checklist, and verify that they apply to program needs.
- c. Tailor categories and questions on the item-selection checklist to meet unique program requirements.
- d. Assign weights to each of the four categories (technical, schedule, logistics support, and cost). The weights should reflect each category's importance to the program. We recommend that the points (weights) assigned to all categories total 100. Show these weights on the item-selection summary worksheet.
- e. Assign a numerical value for the answer to each question. For example, you might assign a score of ten to a completely satisfactory answer and a score of zero to a completely unsatisfactory answer. Questions within a given category can be assigned different scores; more important questions should be assigned higher scores.
- f. Analyze each item, using information from the Equipment Lists, the technical authority responsible for the item and commercial catalogs.
 - (1) Evaluate each item with the checklist, and record the scores on the item-selection worksheet (Fig A2-2). Add comments if necessary. You may use one worksheet to record results for several items.

(2) For each category, determine the highest possible score by totalling the values you assigned (Step e above) to all of the questions in the category.

g. Total the scores recorded in f(1) for each category.

h. Divide the category total in g by the highest possible score in f(2), to get a raw score.

i. Multiply this raw score by the weight you assigned to the category (para d), to get the weighted category score. Record this score on the item-selection summary worksheet (Fig A2-2).

j. Repeat the above process to get weighted category scores for each category. Total the category scores.

k. Fill out the item selection summary worksheet (Fig. A2-2).

1. Merely comparing scores does not always lead to a clear-cut decision. Therefore, before beginning this process you should consider:

(1) If an item gets an unacceptable score on a high-priority question, should you disqualify it?

(2) If an item gets an unacceptable score on a high-priority category, should you disqualify it?

(3) If items receive comparable scores, how will you select an item?

SOURCE: AFSCR/AFLCR 800-31, Government-Furnisher Equipment/Contractor-Furnished Equipment (GFE/CFE) Selection Process, GFE Acquisition and GFE Management, 13 July 1979.

Table A2-1 Item Selection Checklist

SCORE TECHNICAL

Has the item previously been qualified to meet its intended application? If not, what qualification testing will it require?

Are there test data for each of the following: reliability and maintainability (R&M), survivability, vulnerability, human factors? Is the availability of these test data critical to the system's schedule? Is the item compatible with the system/program's environmental conditions (i.e., corrosion, humidity, temperature, shock, vibration, etc.)?

For an inventory item, what is its current physical condition? Will it satisfy the requirements of its product specification?

Must the item be modified for its intended use?

Does the item or its test equipment require software? Will modifying the item require changing the software?

Is the item approaching technological obsolescence? Is technological obsolescence significant for program requirements?

For inventory assets, is the specification current?

Does the item meet system safety requirements?

Does the item require a standard interface?

Is the item compatible with the program's interface requirements?

Is the item compatible with standard interfaces?

Are there historical data available on the equipment (MTBF, MTTR)?

If the item were selected as part of the system, how would it affect the system's preventive maintenance time?

How would the item affect system MTBM?

Are the item's physical dimensions and weights within the constraints the system imposes?

Is the item's configuration stable, or is it subject to high change activity (for example, ECPs, TCTOs, modifications)? Will changes be consistent with program requirements?

Does the Government own procurement data for the item?

Does the item require special test or support equipment? If so, is it available?

Is the item currently used in (or forecast for use in) other systems in its present or modified condition? If so, would a joint acquisition of the item save money?

Can the item be bought in large enough quantities to acceptable quality-assurance standards? Are extremely tight tolerances required during manufacture?

For an item available in inventory, who has overhauled it? Was it overhauled to T.O. or Spec?

Does the state of the art dictate whether to develop a new item, or use an existing or modified item?

Does the item have growth potential to increase capability or performance by making modifications?

Where an item's reliability was established by AFM 60-1, what environmental conditions was the item subjected to when the data were gathered? Will the new environment be similar?

Is there enough technical documentation to redefine the item's functional and physical characteristics? If so, is the documentation current and approved?

SCHEDULE

Is the inventory item available to meet the system schedule?

If the item must be modified, can it be modified in time to meet the master program schedule?

Can the commercial item be bought in time to meet the schedule?

What is the delivery schedule for support equipment? Does it meet prime-item delivery?

Can a new item be developed in time to meet the program schedule?

LOGISTICS SUPPORT

Does the item present any special transportation, handling or storage problems? If so, are they peculiar to the item, or normal for the item's class of equipment?

Will personnel need additional training to operate or maintain the item?

If the item requires modification, who will modify it?

- _____ Will the item's characteristics affect the system's maintenance philosophy?
- _____ How many spares will be needed? Are they available? If not, can they be bought in time to support the system's schedule?
- _____ What support equipment is required to support the item? Is it available in the inventory?
- _____ If the item is in inventory, how will it be supported, i.e., is the repair-pipeline time compatible with the system's development schedules?
- _____ Is the item's shelf life compatible with the system's maintenance concept?
- _____ If the item is a commercial item, how will it be maintained? Are T.O.s available?
- _____ Can we support the item throughout the expected life of the system?
- _____ Who will maintain the item? Who will repair it?
- _____ Will increasing demands affect recoverability or level of repair?
- _____ Will existing technical data for the inventory item be impacted by the new system?

COST

- _____ For inventory items, what is the requirement to pay back the inventory?
- _____ What are the transportation, handling, and storage costs?
- _____ For a commercial item, will a quantity buy give savings?
- _____ Does the item require releasing funds early to meet the system schedule? Is long-lead funding possible?
- _____ What is life-cycle cost impact? (See Atch 1.)

ACQUISITION #				
ITEM FUNCTION				
ITEM(S) NOMENCLATURE:				
EVALUATOR:				
DATE:				
ASSIGN CATEGORY WEIGHTS: *				
TECHNICAL	_____	TOTAL 100 POINTS		
SCHEDULE	_____			
COST	_____			
LOGISTICS	_____			
SUPPORT	_____			
CATEGORY: TECHNICAL				
CHECKLIST SCORE		ITEM A	ITEM B	ITEM N
1.				
2.				
3.				
4.				
23.				
ITEM SCORE		_____	_____	_____
TOTAL MAXIMUM SCORE POSSIBLE				
CATEGORY: SCHEDULE				
CHECKLIST SCORE		ITEM A	ITEM B	ITEM N
1.				
2.				
3.				
4.				
ITEM SCORE		_____	_____	_____
TOTAL MAXIMUM SCORE POSSIBLE				
CATEGORY: LOGISTICS SUPPORT				
CHECKLIST SCORE		ITEM A	ITEM B	ITEM N
1.				
2.				
3.				
9.				
ITEM SCORE		_____	_____	_____
TOTAL MAXIMUM SCORE POSSIBLE				
*The weights assigned to each category must be commensurate with individual program and life-cycle cost objectives.				

Figure A2-2. Item-Selection Summary Worksheet (Sample Format).

CATEGORY: COST			
CHECKLIST SCORE	ITEM A	ITEM B	ITEM N
1.			
2.			
3.			
4.			
ITEM SCORE			
TOTAL MAXIMUM SCORE POSSIBLE			
CATEGORY: SCORE DETERMINATION			
$\text{WEIGHTED SCORE (W.S.)} = \frac{\text{ITEM TOTAL SCORE}}{\text{TOTAL MAX SCORE}} \times \text{CATEGORY WEIGHTING}$			
CATEGORY	ITEM A	ITEM B	ITEM N
TECHNICAL	W.S.	W.S.	
SCHEDULE	W.S.	W.S.	
SUPPORT	W.S.	W.S.	
COST	W.S.	W.S.	W.S.
	TOTAL	TOTAL	
ITEM SELECTED:			
EVALUATOR COMMENTS:			

Figure A2-2. Item-Selection Summary Worksheet (Sample Format)--Continued.

APPENDIX B

The following extracts from AFSC/AFLC Regulation 800-31 are provided only to assist in the development of DARCOM guidance. The inclusion of any part from the regulation in this appendix is meant only for information and not as an endorsement of the Air Force CFE/GFE acquisition and management system.

DEPARTMENT OF THE AIR FORCE
Headquarters Air Force Systems Command
Andrews Air Force Base DC 20334
Headquarters Air Force Logistics Command
Wright-Patterson Air Force Base OH 45433

AFSC/AFLC REGULATION 800-31

13 July 1979

Acquisition Management

GOVERNMENT-FURNISHED EQUIPMENT/CONTRACTOR-FURNISHED EQUIPMENT (GFE/CFE) SELECTION PROCESS, GFE ACQUISITION AND GFE MANAGEMENT

This regulation implements AFR 800-22, CFE vs GFE Selection Process, establishes policies and procedures, and assigns responsibilities for the GFE/CFE selection process and the acquisition management of GFE. This regulation is primarily concerned with system/subsystem programs in demonstration and validation, full-scale engineering development, and production phases; it does not apply to laboratory efforts in research (6.1), exploratory development (6.2), and advance development technology (6.3), that are not acquisition efforts. It applies to AFSC/AFLC organizations that plan, identify, select, develop, test, acquire, or modify equipment to support (1) AFR 800-2, Acquisition Program Management; (2) AFR 57-4, Modification Program Approval; and (3) AFR 800-18, Program Management of Systems Acquisition for Foreign Military Sales.

The inclusion of names of any specific commercial product, commodity, or service in this publication is for information purposes only and does not imply endorsement by the Air Force.

	Paragraph	Page
Objective	1	2
Terms Explained	2	2
Policy	3	3
Responsibilities	4	5
Attachments		
1. Life-Cycle Cost (LCC) Model		11
2. GFE/CFE Selection Process		17
3. Policies, Procedures, and Preparation Instructions for AFSC/AFLC Form 8, GFE Availability Request/Acquisition Assessment		28
4. Mission Equipment Acquisition and Management Guidance		33
5. Support Equipment Acquisition and Management Guidance		37
6. Guidance, Procedures, and Instructions for Preparing AFSC/AFLC Form 7, Government Furnished Configuration Item Technical Requirements		41
7. Procedures for Processing DD Form 610, GFE Requirement Schedule		47
8. Standard/Preferred Equipment Lists Strategy		48

OMITTED

1. **Objective.** The policy and guidance provided in this regulation are intended to:

- a. Emphasize use of standard equipment.
- b. Reduce systems costs (acquisition and support) by promoting standardization.
- c. Provide methods and models for item-selection and acquisition-method (GFE vs CFE) decisions.
- d. Provide a method to determine whether GFE is available or procurable to meet program requirements.
- e. Preserve a written rationale for equipment selection and GFE vs CFE decisions.

2. **Terms Explained:**

a. **Government-Furnished Property (GFP).** (Defense Acquisition Regulation (DAR) (formerly ASPR) 13-101.2) Property in the possession of or acquired directly by the Government, and subsequently delivered or otherwise made available to the contractor. There are five categories of GFP: material, special tooling, special test equipment, military property, and facilities.

b. **Government-Furnished Material.** (DAR 13-101.4 and 11-102.5) Property provided by the Government that may be incorporated into or attached to an end item to be delivered under a contract, or that may be consumed or expended in performing a contract. Includes but is not limited to new, raw and processed material, parts, components, assemblies and small tools and supplies. In this regulation, Government-Furnished Material also includes stock-fund consumable-type items.

c. **Equipment.** A major subdivision of a weapon system or subsystem that performs a function affecting the weapon system or subsystem's operational capability and readiness. For the purpose of this regulation, equipment is a subset of GFP: a major functional unit, assembly, module or end item, but not piece parts or components which make up an item of equipment. Equipment includes both mission equipment (DO41-type items) and support equipment (DO39-type items). In applying this regulation, the terms "equipment," "item," and "unit" are equivalent.

d. **Mission Equipment (ME).** Any item which is a functional part of a system or subsystem, and which is required to perform mission operations. It includes items such as aircraft radios, missile-launching mechanisms, engines, constant-speed drives, munition pylons, command-and-control displays, and radar sets. (It may include nonconsumable/investment items with expendability-recoverability-repairability codes (ERRC) of C, T, and L.)

e. **Support Equipment (SE).** (AFMCR/AFSCR 800-24) All equipment required to make or keep a system, command-and-control system, support system, subsystem, or end item of equipment or component operational in its intended environment. This includes all equipment needed to install, launch, arrest, guide, control, direct, inspect, test, adjust, calibrate, appraise, gauge, measure, assemble, disassemble, handle, transport, safeguard, store, actuate, service, repair, overhaul, maintain, or operate the system, subsystem, end item, or component, as well

as Support Equipment for Support Equipment.

f. **Government-Furnished Equipment (GFE).** (AFR 800-22) Items in the possession of or acquired directly by the Government and subsequently delivered to or otherwise made available to the contractor for integration into the system or equipment. Equipment designated as GFE may be delivered directly to the using organization. GFE includes both mission and support equipment, as defined in d and e above. This definition narrows the general definition of GFP by adding the qualifier "for integration into the system or equipment." As a result, some GFP is not GFE--but all GFE is GFP. In general, there are five categories of property, as defined in DAR 13-101.0: material, special tooling, special test equipment, military property and facilities. Any of these categories of GFP can also be classified as GFE if it is "for integration into the system or equipment" for a given contract. The following subparagraphs discuss each property category.

(1) **Material (DAR 13-101.4)** and, more specifically, **Government-Furnished Material (GFM)**, is not GFE unless it is mission equipment or support equipment as defined in this regulation. Consumable GFM is not GFE.

(2) **The Special Tooling (DAR 13-101.5)** and **Special Test Equipment (DAR 13-101.6)** categories of GFP are not GFE unless they will be delivered as end items, systems, or equipment. When delivered, the item becomes either SE or ME.

(3) **Facilities (DAR 13-101.8)** means industrial property, which can only be classified as GFP, not GFE.

(4) **Military Property (DAR 13-101.7)** or property designed for military operations may be GFE (ME or SE), depending on its relationship to end items the contractor will deliver.

g. **Contractor-Furnished Equipment (CFE).** Items acquired, modified, or manufactured directly by the contractor for use in the system or equipment under contract. CFE includes both ME and SE.

h. **Air Force Designated Standard Item (AFDSI).** An item specifically developed or acquired to fulfill multiple Air Force requirements, and which has been formally designated a standard item by HQ USAF. AFDSI includes both inventory items and items under development (atch 8).

i. **Preferred Item.** An item not specifically developed or acquired to fulfill multiple Air Force requirements, but which has been subsequently identified by the cognizant equipment development/buying activity as having that potential. Preferred Items include both inventory items and items under development (atch 8).

j. **Common GFE.** GFE used in more than one system or equipment program.

k. **Peculiar GFE.** GFE used in only one system or

equipment program.

l. **Equipment-Buying Activity/Buying Activity.** The designated Government office, responsible for managing, engineering, and acquiring a specified piece of equipment, to support activities that require the equipment.

m. **GFE Manager.** The individual or office the system/program manager has made responsible for managing and coordinating the equipment selection and acquisition method decision process.

n. **Preliminary Equipment List (PEL).** The first list of screened equipment the system/program office recommends for use after the Pre-Request for Proposal (Pre-RFP) preliminary equipment-selection decision.

o. **Preliminary Master GFE List (PMGFEL).** The part of the PEL that the preliminary acquisition-approach decision recommends providing to the contractor as GFE. The PMGFEL is incorporated into the RFP and sent to industry for review and comment.

p. **Preliminary Master CFE List (PMCFEL).** The part of the PEL that the preliminary acquisition-approach decision indicates the contractor should furnish as CFE. The PMCFEL is incorporated into the RFP and sent to industry for review and comment.

q. **Master GFE List (MGFEL).** The contractually binding list of all approved GFE which must be integrated into the system/equipment. (This list may include items that are mission or support equipment, as defined in this regulation.)

r. **Master CFE List (MCFEL).** The contractually binding list of all approved CFE for the system/equipment.

s. **Life Cycle Cost.** An item or system's total cost over its full life. This includes the cost of developing it, acquiring it, owning it (operation, maintenance, support, etc.) and, where applicable, disposing of it. To be meaningful, life cycle cost must be given in the context of the cost elements it includes, the period of time it covers, the assumptions and conditions it imposes, and whether it is meant as a relative comparison or absolute expression of expected cost.

t. **GFE System Program Office (SPO).** The AFSC product-division office that has been assigned overall responsibility for acquiring a specific piece of equipment to satisfy current or future equipment requirements.

u. **Material Utilization Control Office (MUCO).** An activity at each Air Logistic Center (ALC) which is the ALC's single point of contact for managing and controlling GFE/GFM items accepted for use on Air Force L-Y contracts.

v. **EY.** The letters "EY" plus four digits are used to number stock-record accounts (SRAN) that identify each contractor. The contractors use these numbers on requisitions when they order material. These EY designators are used on contracts for

production, R&D, and tests. For example, EY9269--Northrop Corporation; EY5768--Sperry Rand.

3. Policy:

a. Program managers will maximize integration of designated standard and preferred equipment into our new system developments.

b. Designated standard and preferred equipment will be provided to the contractor as GFE. The product division commander or the designated representative must approve any exceptions to this policy.

c. The organization (AFSC/AFLC) responsible for managing selected equipment will acquire designated standard and preferred equipment to support AFSC program offices' GFE requirements.

d. AFSC/AFLC will develop the Preferred Item List and keep it current. This list supplements the AFSDIL and, when it is technically applicable, program managers must use it for system/subsystems integration.

OMITTED

f. For each acquisition, modification, and foreign military sales program, the system or program manager will tailor the methodology given in this regulation's attachments to the program's specific needs, within available resources. Program and acquisition planning documents must describe the approach for identifying, selecting, acquiring, and managing contracts for all equipment.

g. Base the equipment or item selection decision on a methodical screening of all known sources of equipment, both Government and industry. With or without modification, the equipment you select must satisfy the technical and logistics support requirements of the system/equipment you will use it in.

This item-selection decision process ultimately produces master GFE and CFE lists which become part of the contract. When reviews and decisions affect system configuration, the program office keeps these lists current throughout the contract period. Directorates of contracting and manufacturing will review RFPs before releasing them, to ensure they include master GFE/CFE lists.

h. Within the overall constraints of the item selection and acquisition method criteria, equipment will generally be selected according to the following order:

(1) Air Force Designated Standard Items/

Preferred Items.

(2) Items in the Government inventory or being developed under Government contract.

(3) Commercially available items that meet technical and logistics requirements.

(4) Modifications of any of the above.

(5) New items to be developed.

i. Whenever a program requires delivering operational equipment to the Air Force, perform the GFE/CFE selection-process analysis (atch 2) to support all equipment selection and acquisition approach decisions. If you expect the cost of analyzing an item will be more than any potential savings, substantiate this estimate and document it in the program records; then you do not need to carry out the selection process (atch 2).

j. The CFE/CFE selection process requires using a systematic method to identify and select the equipment that satisfies system/program requirements best, and to identify the best way to acquire it. The process involves two decisions that are separate, but interdependent: that is, an equipment selection decision and an acquisition approach decision. Support both of these decisions with explanatory documentation, coordinate them with all participants, and incorporate the documentation into program records. Program directors and managers must be prepared to explain the rationale for their selection process at appropriate program reviews.

k. Begin the process for choosing between GFE and CFE (atch 2 and figure A2-1) before submitting the RFP (validation, FSED, and Production RFPs), and continue it throughout these phases as you identify additional requirements for equipment. For the validation-phase RFP, you need not use this GFE vs CFE selection process unless the equipment will significantly affect system design and validation.

l. The acquisition-approach decision extends the item-selection decision by showing the best way for the Government to provide or otherwise authorize acquiring the selected equipment, so the contractor can integrate it into the system or equipment. Select an acquisition approach that is responsive to the requiring activity's equipment requirements and schedule.

m. When a program office needs to acquire equipment for program needs, it has three general options:

(1) Equipment can be furnished to the prime contractor as GFE by the DOD equipment-buying activity responsible for acquiring and managing it, for example:

(a) AFSC product divisions, for equipment under development or new equipment to be developed.

(b) AFLC Air Logistic Centers, for inventory equipment after program-management responsibility has been transferred.

(c) Any other DOD equipment-buying

activity.

(2) Equipment can be furnished to the prime contractor as GFE as a result of direct contracting actions with equipment contractors by the AFSC/AFLC system/program office. Use this option when the buying activities listed in Option (1) report they cannot provide the equipment you need.

(3) Through the contracting officer, the program office can authorize the prime contractor to get equipment as CFE. Do not use this option unless you have eliminated Options (1) and (2) based on the GFE/CFE selection analysis (atch 2).

n. When selecting, developing, or acquiring equipment, consider leadtime requirements so that equipment will be available in time to meet the system/program's schedule.

OMITTED

o. Contractors must be required to help carry out the DOD Standardization Program and make best use of existing DOD equipment inventories. They must be specifically invited to challenge equipment required in the request for proposal (RFP) when other equipment is demonstrably more advantageous to the Government.

p. Based on system or equipment configuration, prepare a list of CFE which conforms to the component breakout criteria and guidelines of DAR 1-326, AFLCR/AFSCR 800-24, and this regulation. Evaluate the CFE annually and consider converting it to GFE.

q. When using Government-owned equipment as GFP on Government contracts, see the provisions of DAR 1-302.1 and DAR Section XIII.

r. Process Foreign Military Sales (FMS) requirements for GFE support according to this regulation, unless the country requests different processing as specified in AFR 400-3, Foreign Military Sales. Then consider using GFP assets to fulfill FMS production and installation requirements on a case-by-case basis, depending on:

(1) The agreement with the individual country.

(2) Whether the FMS weapon-system program requires single-vendor integrity.

(3) Other conditions the countries involved have mutually agreed on.

OMITTED

t. This regulation is mainly intended for system and subsystem programs in the demonstration and validation, full-scale engineering development, and production phases; however, equipment selection must also be considered during the initial stage of program planning.

u. Ensure that GFE/GFM used to meet FMS requirements is properly billed to the FMS country.

4. Responsibilities: All organizations responsible for implementing this regulation must issue a supplement or local procedures, specifying how they will carry out their responsibilities.

4-1. HQ AFSC:

a. HQ AFSC/SDD is the OPR, and HQ AFSC/LGY and HQ AFSC/PMD are the OCRs, for all AFSC GFE/CFE policies and procedures. They must ensure that the Product Divisions get all management policies and procedures.

b. HQ AFSC/SDD is responsible for approving items placed on the AFSC/AFLC Preferred Item List (PIL). (ASD/ALD/AX must coordinate all avionics items on the AFDSIL and the AFSC/AFLC Preferred Item List (AFR 800-28).) SDD will:

(1) Jointly with HQ AFLC, develop appropriate standards, methods and models to use in the GFE vs CFE selection process, monitor how effectively they are carried out, and keep them up to date.

(2) Ensure that program directives give appropriate guidance for selecting the equipment the system or subsystem requires.

(3) Ensure AFSC Form 56, AFSC Program Direction, calls for using AF designated standard items when possible.

(4) With HQ AFLC, develop, maintain and issue designated standard or preferred item lists (AFR 800-22).

4-2. AFSC Product Divisions will:

a. Designate an OPR to exercise overall management responsibility in formulating and maintaining local policies and procedures for selecting and acquiring GFE/CFE.

b. Evaluate and integrate GFE/CFE practices, and develop and implement any improvements they need.

c. Develop, update and maintain the life-cycle cost model the system or program office uses to make item-selection decisions during the GFE/CFE selection process.

d. Advise the system or program office on how to tailor the procedures in this regulation, and use models, so they will be suited to the equipment considered in the item-selection decision process.

e. Help tailor the checklists for item selection and acquisition approach to ensure they consider relevant

technical performance and design aspects of alternate equipment.

f. Ensure that the Preliminary Master GFE list and the Preliminary Master CFE list are specifically included in the RFP.

g. Interface with AFSC/AFALD.

4-3. AFSC or AFLC System Program Offices:

a. System Program Director/Program Manager (SPD/PM) will:

(1) Exercise overall management responsibility for selecting, acquiring, and managing equipment to support system or program needs.

(2) In exercising system or program manager responsibility, get help from personnel in contracting, manufacturing, engineering, comptroller, equipment-buying activities, small business, Contract Administration Office (CAO), and logistics.

(3) Designate a GFE manager or office within the system or program office to carry out the responsibilities in para 4-3b of this regulation.

(4) Ensure that system/program planning and acquisition documentation specifically includes program strategy, criteria, and constraints for selecting, acquiring, and managing equipment.

(5) Ensure the GFE/CFE selection process is used once mission and support equipment requirements are identified.

(6) Approve the way the GFE/CFE selection process methodology is tailored, as prescribed in this regulation, to assure it is relevant to system or program requirements.

(7) Ensure available equipment lists and other source documents are screened to identify equipment that is technically appropriate for system or program needs.

OMITTED

(9) Ensure that items on Master GFE and CFE lists, and any modifications to them, are included in the system or subsystem specifications and contract.

(10) Ensure that the rationale for all equipment-selection process decisions throughout the life of the system or program is recorded in program documentation.

(11) Ensure that the RFP includes instructions that motivate contractors to challenge any recommended equipment when they can show alternate equipment is more advantageous because it supports DOD standardization better and makes better use of existing DOD equipment inventories.

(12) In coordination with the supporting command, review and approve:

(a) The Preliminary Master GFE and CFE lists in the RFP.

(b) The Master GFE and CFE lists in the contract.

(c) All changes to the Master GFE and CFE lists, after contract award, resulting from the contractor's recommendation or DAR 1-326, Component Breakout Decision process.

(13) Ensure PR/MIPRs are prepared and processed for all Developmental and Initial Operational Test and Evaluation, and all production GFE requirements the SPO is responsible for funding.

(14) Ensure that all Configuration Control Board (CCB) actions which affect the Master GFE and CFE lists are brought to the attention of the GFE manager so the lists can be updated.

(15) Be prepared to present and discuss the rationale for all GFE/CFE selection decisions at program reviews.

(16) Ensure GFE requirements are included in the appropriate command's SE budget for congressional approval. Ensure program funds are available in the GFE acquisition.

b. GFE Manager will:

(1) Serve as the central point of contact for all GFE/CFE decisions about the system or program, including requests from other program offices to expand the use of new development items by using them as GFE in additional programs.

(2) Help the system/program manager prepare GFE/CFE planning documentation.

(3) Tailor the GFE/CFE selection process methodology

so it satisfies system/program needs, and monitor to keep it relevant.

(4) Prepare documentation to substantiate item-selection and acquisition-approach decisions throughout the life of the program.

(5) On behalf of the system or program manager, determine any Foreign Military Sales constraints that may govern the GFE/CFE selection process and any subsequent DAR 1-326 component breakout decisions.

(6) Prepare the Preliminary GFE and CFE lists for inclusion in the RFP.

(7) Start a Preliminary Availability Assessment, as atch 2 of this regulation describes.

(8) Prepare and process Part I of AFSC/AFLC Form 8, GFE Availability Request/Acquisition Assessment, according to the guidance in atch 3 of this regulation.

(9) Assign control numbers to Part I of AFSC/AFLC Form 8 and maintain a file in the program office.

(10) Ascertain whether inventory equipment is available for GFE, and assure it is compatible with the overall system or program schedule.

(11) Require the prime contractor to submit DD Forms 610, GFE Requirement Schedule, to indicate the quantity and schedule of GFE required. Have the cognizant DOD CAO validate the quantity and schedule the contractor has shown on DD Form

610, and forward these data to the GFE equipment-buying activity

OMITTED

(13) Prepare the Master GFE and CFE lists for inclusion in the contract and, after contract award, keep the lists current, accurate and complete. Have copies of the lists (including revisions resulting from contract changes) sent to each ALC/Material Utilization Control Office (MUCO) MMS for all GFE items. Ensure the FSN is included for each item.

(14) Include requirements for reporting rejections, failures, and shortages of GFE in the prime contract. Ask the contractor to send FSN, the repairable shipper document, and the replacing requisition to the ALC/MUCO/MMS office, along with any other details about the replacement. Code replacing acquisitions "N94" in column 57-59.

(15) Confirm that items or equipment on the Master GFE List are available, and formally accept these available assets before contract award (during source selection). Reconfirm that items on the Master GFE List are still available within 30 days after awarding the prime contract.

(16) Schedule (DAR 1-326) component breakout reviews, identify candidate breakout equipment, and document the rationale for any and all breakout decisions.

(17) Coordinate with the comptroller to ensure that documents for budget and funds transfer are processed properly and promptly to support system or program equipment requirements.

OMITTED

(19) Ensure that configuration control, engineering, and manufacturing personnel coordinate with each other when they prepare a new or revised AFSC/AFLC Form 7.

OMITTED

(22) Ensure, by including as terms of the contract:

(a) That the contractor uses established MILSTRIP procedures to prepare requisitions for Government inventory items.

(b) That the SPO gives the contractor the correct signal code (Col 51) and fund codes (Cols 52 and 53) (Ref DAR Appendix H and AFM 67-1, vol 1, part one).

(c) That the contractor enters the last eight digits of the contract number in the supplementary address field or in columns 73-80. If both of these fields are filled, show the complete contract number in the "Remarks" area of the requisition. If necessary, mail the requisitions giving these data to the ALC/MUCO/MMMS office; otherwise use normal channels according to AFM 67-1, Part eight, Chapter 2.

OMITTED

(23) When MUCO requests, validate requirements for items held in MUCO account, so items no longer required can be purged.

(24) When changes will affect the GFE delivery schedule, furnish full details to the equipment-buying activity promptly.

(25) With the equipment-buying activity, mutually identify and resolve significant GFE problems.

(26) Ensure that the contract establishes necessary controls to process GFE shortages and rejects promptly.

(27) With the equipment-buying activity, ensure that excess GFE is disposed of in accordance with contract provisions.

(28) Monitor and process ECPs when the system or CI specifications (paragraph 3-1, 3-1-3, or 3-1-6) change.

(29) When contract changes affect GFE, ensure that the contractor submits or revises DD Form 610, GFE Requirement Schedule (DI-P-6162). If the quantity and schedule requirements shown on the DD Forms 610 change, have the cognizant DOD CAO validate the changes.

(30) Maintain up-to-date records of FMS items for billing purposes.

(31) Maintain records of all items requested by or provided to other programs as GFE.

4.4. Equipment-Buying Activities will:

a. Develop a formal business strategy to find out whether they can buy GFE to satisfy system or program requirements.

b. Assume total management responsibility for

any GFE that they have either had assigned to them or accepted for development or acquisition.

c. Respond promptly to the system or program office's GFE Availability Request/Acquisition Assessment (paragraph 3b(2) of atch 2 to this regulation).

OMITTED

f. Ensure that the configuration of the GFE item being acquired agrees with the configuration in the AFSC/AFLC Form 7.

g. For an equipment item, combine production requirements and spares requirements into a single total requirement wherever possible.

h. Ensure that the GFE vendor contracts include all requirements for provisioning, logistic support, engineering data, and system or program data.

i. If there are changes in configuration or changes in the GFE delivery schedule which may affect the system or program's contract, notify the system or program office promptly.

j. Process Material Deficiency Reports (MDRs) according to TO 00-35D-54 or the provisions of the GFE vendor's contract warranty.

k. With the system or program office, mutually resolve all significant GFE problems.

l. In cooperation with the SPD/PM, ensure that excess GFE is disposed of in accordance with contract provisions.

m. Process "Reject" problems if and when they occur. All contracts should tell what to do if the contractor receives GFE/GFM items that are unacceptable.

4.5. HQ AFLC:

a. AFLC/LO is the OPR for AFLC GFE/CFE/GFM policy and procedures to support development and production contracts. LO ensures that all management policies and procedures are sent out to AFALD, AGMC, CASO, and ALCs.

b. Provide guidance and programming data needed to establish support requirements for production and modification programs.

c. Ensure that the AFLC Form 1208, Program Action Directive, gives guidance for using Air Force Designated Standard Items (AFDSIs) and for selecting the GFE the system or subsystem requires.

d. AFLC/CASO/LODS is the OPR for the AFSC/AFLC Preferred Item List, and approves all AFLC-managed items on the list. (ASD/AID/AX must coordinate all avionics items placed on the AFDSIL and the AFSC/AFLC Preferred Item List (AFR 800-28).)

e. With AFSC, AFLC/CASO/LODS plans, develops, maintains, and issues the AFSC/AFLC Preferred Item List. Program managers use this list to select preferred equipment for system integration.

f. Using advance planning data from system program managers, program funds and budget to acquire GFE equipment to support future programs.

g. Develop policy for acquiring engineering and technical data for GFE/CFE.

4.6. ALC:

a. The D/MM (MMM) will:

(1) Establish controls to ensure compliance with this regulation and AFM 67-1, vol III, part one, chap 9, sec II, and designate an ALC manager to monitor GFE/GFM operations for the ALC.

(2) Establish controls for processing: AFSC/AFLC Forms 8 Purchase Requests (PR), Military Interdepartmental Purchase Requests (MIPRs), and AFLC/AFSC Form 7, EY contractor requisitions.

(3) Ensure that approved GFE items (initially requested on AFSC/AFLC Form 8 and formally accepted by the Program Office are placed in Material Utilization Control Office (MUCO) holding accounts to satisfy system or program requirements.

(4) With help from engineers and the program office, ensure that any available assets meet the technical requirements of the specifications and of the system being developed or modified.

(5) Inform the system manager and the AFSC Program Manager of all configuration changes.

b. The MUCO will:

(1) Receive all AFSC/AFLC Forms 8 from the SPO and establish a file folder for each item, which will contain all pertinent data about it.

(2) Assign control numbers and establish a control system for forms, then send them to the IM for necessary action.

(3) When required, ask the Defense Property Disposal Service (DPDS) or other services about availability and acquisition assessment.

(4) After the IM has completed AFSC/AFLC Forms 8, review them for completeness, update files, sign the forms, and forward them to the system or program office.

(5) On receiving the system/program office's acceptance of available serviceable/reparable assets:

(a) After the PO has submitted the project order (AF Form 185), notify the IM to adjust the repair (MISTR) schedule to meet the program's requirements. Have the repaired assets placed in the MUCO account, and keep the SPO informed. Notify (MMMM) office when equipment is repaired and shipped, so they can have Financial Accounting bill it.

(b) Prepare MILSTRIP requisitions, using the MUCO account number, and send them to the proper supply source to get available assets. Hold

assets in the MUCO account until the SPO/Contractor sends shipping instructions. (If assets are available from another service/PICA, the SPO must give the MUCO fund codes for the requisition, so it can be billed properly.)

(c) Assets obligated for use as GFE cannot be released for any other purpose unless the requiring activity gives permission.

(6) After the SPO accepts an offer, and the ALC takes the necessary supply action, tell the program office the status of each item, including the quantity available, repair status, location of assets, etc.

(7) Receive, process, or reject requisitions from the program office or the contractor. If assets (total or partial) are not available or cannot be shipped as required, advise the program office or contractor. The MUCO will receive, store, and account for GFE items which the production contractor cannot accept.

(8) Reparable assets are not normally stored in the MUCO account.

(9) Semiannually, validate the GFE in the MUCO account with the system or program office. If the program office no longer requires assets, the MUCO gets disposition instructions from the applicable IM.

(10) Coordinate on all PR/MIPRs initiated, to ensure that releasable assets are used before acquiring more.

c. The Inventory Management Division will:

(1) Receive (from the MUCO) and process AFSC/AFLC Forms 8 for both "preliminary" and "final" program requirements. Maintain necessary historical records, and return forms through the MUCO to the program office. If an item requested on the AFSC/AFLC Form 8 is managed by another service (PICA), call or send a message to the PICA for data to complete the form. Ensure that the form indicates whether the item is "free" or whether AFSC must reimburse for it.

(2) Prepare and submit (through the MUCO) amended Parts II and III of AFSC/AFLC Forms 8 when information in previous documents is no longer valid.

(3) On receiving the program office PR/MIPR, reverify requirements and assets, then coordinate.

(4) Prepare and process PR/MIPRs for all spares that AFLC funds to support the new programmed requirements, including provisioning and engineering data to select repair parts. If necessary begin an advance PR and process as required. When provisioning data are not necessary to support the acquisition, ensure that the appropriate AFLC-logistics-data system begins functioning early enough to provide repair parts at all authorized levels of maintenance.

(5) When a PR is for the next fiscal year's

replenishment spares, mark it "Advance PR" and send it to the accounting and finance division. Forward copies of these PRs to the due-in asset activity so they can be entered into the "due-in" asset system (JO-41).

(6) Provide the standard item support required for installed GFE items during Development Test and Evaluation (AFR 67-19).

(7) In processing and coordinating PRs/MIPRs, forward the SM's monthly delivery schedule showing numbers of items needed for kits, SE and spares (AFLCR/AFSCR 57-7).

(8) Supply the Technical Orders or the work packages for repairing or overhauling items. Requisition TOs according to TO-00-5-2, Section VI.

(9) Process EY requisitions from weapon system contractors or system program office. Ensure that Columns 51, 52 and 53 of each requisition contain correct codes for either billing or free issue.

(10) Revise MISTR schedules as required to make assets available when production contractors need them.

(11) Process MUCO requisitions for available items and budget for items that the SPO formally accepts, but which AFLC is responsible for funding.

(12) With the aid of the Equipment Specialist and Technicians, select items for Preferred Item List using AFLC/AFSC Form 6.

(13) When other Government organizations manage items, and the Air Force is not currently listed as a user, ensure that these items are put in the Air Force system and Air Force is listed as a user.

d. The AFLC PR/MIPR Control Office will:

(1) Receive PR/MIPRs and establish controls over them.

(2) Ensure they are processed according to AFLCR/AFSCR 57-7.

4-7. Air Force Acquisition Logistics Division (AFALD): The responsibilities of the AFALD include planning early support; improving availability, supportability, and readiness; reducing life-cycle cost; improving methodologies for system support and acquisition; emphasizing logistics objectives in business strategy; providing operational experience, and improving interfaces between AFSC, AFLC, and using commands. Specific support is available, throughout the item selection and GFE-vs-CFE acquisition process, to help realize these and other goals.

a. AFALD/AQ, Deputy for Strategic, Space, and Electronics Programs, and AFALD/SD, Deputy for Aeronautical and Armament Programs, will:

(1) Ensure that the AFLC SMs get copies of PRs and correspondence about problems on GFE items for the assigned system.

(2) Keep the subsystem program managers, AFLC IMs/MUCOs, informed about subsystems

support.

(3) Function as ALC's focal point for the subsystem program managers.

(4) Ensure the program managers include logistics considerations in subsystem actions.

(5) Ensure SM/IM and technology repair center (TRC) support is provided, including support of test programs.

(6) Keep the SM/IM/MUCO and the program office informed about major logistics problems.

(7) Help the program manager with logistics, including actions of the configuration control board, technical assistance with logistics, and review of applicable contract actions.

b. AFALD/PT, Deputy for Product Evaluation, Engineering, and Test will:

Maintain "lessons learned" data bank and provide tailored "lessons learned" packages to Program Offices, ALCs, or other GFE/CFE screeners upon request.

4.8. Air Force Plant Representative Office (AFPRO)/ Cognizant Contract Administrative Office will:

a. Validate quantities of GFE the contractor requests.

b. Verify schedule setbacks from on-deck dates to installation dates.

c. Verify that the contractor's proposed installation point is the best time to install the GFE.

d. Recommend whether local repair should be authorized and what repair capability will be required.

OFFICIAL

ALTON D. SLAY, General, USAF
Commander

JAMES L. WYATT, JR., Lt Col, USAF
Director of Administration



JAMES H. RIX, Colonel, USAF
Director of Administration

BRYCE POE, II, General, USAF
Commander

SUMMARY OF CHANGES

This regulation implements AFM 800-22, CFE vs GFE Selection Process, 30 Aug 76.

AFSC — Andrews AFB Md 1979

BIBLIOGRAPHY

Barclay, Scott, Rex V. Brown, Clinton W. Kelly, III, Cameron R. Peterson, Lawrence D. Phillips and Judith Selvidge. Handbook for Decision Analysis. McLean, Virginia: Decision and Designs, Inc., 1977.

Comptroller General. General Accounting Office. GAO Report B-178214. Uninformed Procurement Decisions for Commercial Products are Costly. Washington: General Accounting Office Reports, 1977.

Corey, James M. "The Full Measure of Resource Costs," Defense Management Journal. 16 (3rd Quarter, 1980).

Department of Air Force. Air Force Audit Agency. Summary Report of Audit 807510. Component Breakout in Weapon Systems Acquisition. Washington: Air Force Audit Agency, 1980.

. Air Force System Command and Air Force Logistics Command. AFSC/AFLC Regulation 800-31. Government-Furnished Equipment/Contractor-Furnished Equipment (GFE/CFE) Selection Process, GFE Acquisition and GFE Management. Andrews Air Force Base, Maryland: Air Force Systems Command. July 1979.

Department of Army. Army Materiel Development and Readiness Command. AMC Regulation 700-42. Logistics: Furnishing of Long Supply and Excess Stocks as Government-Furnished Material (GFM). January 1975.

. Army Materiel Development and Readiness Command. DARCOM Regulation 700-97. Acquisition Management, Standard Integrated Support Management System. March 1975.

. DARCOM Handbook H-1.1-79. Army Programs Decision Risk Analysis (DRA) Handbook.

Department of Defense. Assistant Secretary of Defense (Installations and Logistics). Defense Acquisition Regulation. 1976.

. Department of Defense Instruction 7041.3. Economic Analysis and Program Evaluation for Resource Management. October 1972.

. Department of Defense Instruction 5000.2. Major System Acquisition Procedures. March 1980.

Department of Navy. Naval Ships Systems Command. DX/DXG Project. CFE/GFE Policy Study Final Report. 1967.

Dewhurst, Roland F. J. Business Cost - Benefit Analysis. London: McGraw Hill Book Company, Unlimited, 1972.

- Dillard, B. D., Captain, and Captain P. D. Inscoe. Identification and Definition of the Management Cost Elements for Contractor Furnished Equipment and Government Furnished Equipment. Wright-Patterson Air Force Base, Ohio: Air Force Institute of Technology - Department of Research and Administrative Management, 1978.
- Fisher, Gene H. Cost Considerations in System Analysis. New York: American Elsevier Publishing Company, Inc., 1971.
- Klopp, Gerald A. Army Procurement Research Office Report 81-01. Weighted Guidelines Trend Analysis. Draft, January 1981.
- Massey, H. G. Rand Paper P-5197. Cost, Benefit, and Risk -- Key to Evaluation of Policy Alternatives. Santa Monica: Rand Corporation, 1974.
- Pace, Dean F. Negotiation and Management of Defense Contracts. Wiley-Interscience, 1970.
- Seldon, M. Robert. Life Cycle Costing: A Better Method of Government Procurement. Boulder, Colorado: Westview Press, 1979.
- Smith, Charles H. and Charles M. Lowe. Army Procurement Research Office Research Paper P-5. Sole Source and Competitive Price Trends in Spare Parts Acquisition. Draft, January 1981.
- Williams, W. B. and F. W. Helwig. Army Procurement Research Office Report 506. Evaluation of the System Responsibility Concept. Unpublished Study, February 1975.

STUDY TEAM COMPOSITION

Charles M. Lowe, Jr., Procurement Analyst, US Army Procurement Research Office, Fort Lee, Virginia. B.B.A., East Texas State University, 1974; M.B.A., Southern Illinois University-Edwardsville, 1977; M.S., Florida Institute of Technology, 1978. Prior to joining the Army Procurement Research Office, Mr. Lowe was a Procurement Analyst in the Directorate for Procurement and Production, US Army Troop Support and Aviation Materiel Readiness Command.

Gerald A. Klopp, Statistician, Army Procurement Research Office, Fort Lee, Virginia. B.S. in Electrical Engineering, 1972, Michigan State University; M.E. in Industrial Engineering, 1974, Texas A&M University. Prior to joining the Army Procurement Research Office, Mr. Klopp was employed as an Operations Research Analyst at the Logistics Center, Fort Lee, Virginia. Mr. Klopp also has experience as an Electronics Engineer, Instructor and Course Director. He also serves as an Adjunct Professor at a local university.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER APRO-80-10	2. GOVT ACCESSION NO. AD-200 648	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Contractor-Furnished Equipment Versus Government-Furnished Equipment		5. TYPE OF REPORT & PERIOD COVERED 9: FINAL Rept.
7. AUTHOR(s) 10 Charles M./Lowe, Jr.		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS US Army Procurement Research Office US Army Logistics Management Center Fort Lee, VA 23801		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Materiel Development & Readiness Command ATTN: DRCPP 5001 Eisenhower Avenue Alexandria, VA 22333		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 12 60
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 11 MAY 1981
		13. NUMBER OF PAGES 51
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		16a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Distribution is unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Procurement; Decision; CFE; GFE		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Two methods are utilized to provide the components/sub-systems for a Government contract: contractor-furnished equipment (CFE) or Government-furnished equipment (GFE). DAR 13-201 states it is the general policy of the Department of Defense that contractors will furnish all equipment required for the performance of Government contracts. However, the Government should furnish equipment to a contractor when it is determined to be in the best interest of the Government by reason of economy, standardization, the expediting of production, or other appropriate circumstances. A model is developed to assist in the analysis for		

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

406825

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

a decision to use CFE or GFE. The use of structured analysis of the subjective areas involved in using either approach provides for a more defensible business decision.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)